Environmental Company
AIR TOX
Environmental Solutions For Today's Industries

July 20, 1998

Mr. Ira W. Leighton, Acting Director
Office of Environmental Stewardship
U.S. Environmental Protection Agency
JFK Federal Building (SEA)
Boston, Massachusetts 02203
Attn: Steven Calder

and

Mr. Michael Sullivan
Director of Engineering and Enforcement
Department of Environmental Protection
79 Elm Street
Hartford, CT 06490
Attention: Elizabeth McAulife

RE: Clean Air Act Administrative Order and Reporting Requirement
Docket No. AAA-98-0033
Emissions Testing Protocol - Superior Plating of Southport, Connecticut

Dear Mr. Leighton and Mr. Sullivan:

Please find the attached Emissions Test Protocol for testing to be completed at Superior Plating in Southport, Connecticut during October 13 through 15, 1998. Three newly installed 40,000-cfm composite mesh pad mist eliminators will be tested on these days.

This protocol fulfills the pre-test protocol requirement as described in Section III (A) (2) of the Administrative Order (Docket No. AAA-98-0033) received on July 14, 1998.

If you have any questions or require further information, please call me at (860)487-5606.

Sincerely,
Air Tox Environmental Company Inc.

Dan Aune
Project Manager

cc: George Miller, CT-DEP
Al Hicks, US EPA

Attachment

P.O. Box 239 • Willington, Connecticut 06279 • 860-487-5606 • Fax 860-487-5607

Environmental Company
AIR TOX
Environmental Solutions For Today's Industries

Midwest Air Products Co. Inc.
Enforcer III Composite Mesh Pad Mist Eliminators

EMISSIONS TEST PROTOCOL

Superior Plating Co.
Southport, Connecticut

Prepared for:

Mr. Richard Durazzo
Superior Plating Co.

Prepared by:

Dan E. Aune
Project Manager

June 1998

Air Tox Project No. 96029

P.O. Box 239 • Willington, Connecticut 06279 • 860-487-5606 • Fax 860-487-5607

TABLE OF CONTENTS

1.0 INTRODUCTION

Air Tox Environmental Company, Inc. of Willington, Connecticut has been retained by Superior Plating of Southport, Connecticut to perform compliance testing on three MAPCO Enforcer III composite mesh pad (CMP) mist eliminators servicing multiple hard chrome electroplating processes. The purpose of this testing is to fulfill the compliance testing requirements of the Chromium NESHAP MACT emission rate standard of 0.015 mg/dscm.

The test program described within this protocol will be performed on October 13 - 14, 1998. One of the CMPs will be tested each day using two Method 306A sampling trains. Please note that each unit has two exhaust stacks. The compliance program will be completed under the supervision of Dan Aune of Air Tox and Richard Durazzo of Superior Plating.

Section 2.0 of this protocol presents the scope of the sampling program. A description of the process and operations is presented in Section 3.0. Sampling and analytical methodologies, including a detailed description of the sampling train, are presented in Section 4.0. Air Tox's quality assurance plan is detailed in Section 5.0. A copy of the notification of performance test form, calibration sheets, sample field data sheets, and example calculations are contained in the Appendix.

2.0 SCOPE OF THE SAMPLING PROGRAM

The purpose of this testing program is to demonstrate compliance with The National Emissions Standards for Chromium Emissions from Hard and Decorative Chromium Electroplating and Anodizing Tanks, which were published in the Federal Register on January 25, 1995. Testing will also verify compliance with the requirements of Connecticut's "Maximum Allowable Stack Concentration" (MASC) for chromium.

Superior Plating utilizes three composite mesh pad (CMP) mist eliminators to control chromium emissions from 21 hard chrome electroplating tanks. The chromium mist generated by the tanks is pulled from each tank through double-sided lateral exhaust hoods and then through ducting to the CMPs. Two 20,000 acfm fans are utilized to pull the vapors through each CMP and to exhaust through twin 36" diameter stacks. Schematics of the ducting and CMP configurations are included with this protocol. The testing program described in this protocol will demonstrate that chromium emissions from the six CMP stacks (two per unit) are less than 0.005 mg/dscm. Please also note that the CMP mesh pads are peroidically washed down with de-ionized water which will be treated on-site by Superior's waste water treatment system.

Chromium sampling and analysis will be carried out on each of the six stacks in accordance with EPA Method 306A (60 FR 4986). The test program will also utilize EPA Reference Methods 1 and 2. Each of CMP's stacks will be tested simultaneously using two sampling trains while CMP fans are operating at their maximums. One unit will be tested each day during the three day testing program. As specified in Method 306A, three two-hour sample tests will be completed for each stack. Analysis of the test samples will be performed by an accredited laboratory for total chromium. The total chromium content and test data will then be used to calculate the total emission rate for each test in mg/dscm, µg/acm, and mg/hr. The results of each stack's three sample runs will then be averaged and compared to the emissions rate limit of 0.005 mg/dscm.

Pressure-drop measurements of the CMPs will be taken at 10 minute intervals during the testing. The pressure-drop measurements established during the testing will also be used to verify continual compliance.

3.0 PROCESS AND OPERATIONS

Superior Plating is a custom job shop that performs hard chrome electroplating for the aircraft industry, gun manufacturers, machinery, cylinders, bearings, and other miscellaneous parts where corrosion resistance, wear or hardness is required. Parts in general are various alloys of steel and aluminum.

Please refer to Table 3.1 for a listing of each of Superior Plating's hard chrome electroplating tanks and their specifications. Superior Plating's maximum cumulative rectifier potential is 897 million ampere-hours per year, thus classifying their facility as a large source. The rectifier amperages during testing will be documented and presented in the performance test results report. Rectifier amperage data will be read from the ampere meters on each rectifier. This data will be taken on 10 minute intervals during testing. Please refer to Table 3.2 for a listing of each tank and the expected amperages during testing. These expected amperages represent what Superior considers maximum production.

Table 3.1 Tank Specifications

Tank Number	Tank Length (inches)	Tank Width (inches)	Tank Height (inches)	Fluid level (inches)	Volume (gallons)	Rectifier Amperage	CrO3 Conc. (g/l)	Vented to CMP
18	84	36	48	42	550	10000	240-270	SC-3
19	156	48	60	54	1750	9000	250-280	SC-3
20	120	36	36	31.5	589	7500	375-420	SC-3
21	48	48	48	45	449	1500	275-300	SC-3
23	288	42	48	42	2199	12500	250-280	SC-3
24	84	36	96	90	1178	9000	250-280	SC-3
31	84	36	48	42	550	4000	240-260	SC-2
32	84	36	48	42	550	9300	240-260	SC-2
33	84	36	72	66	864	7500	240-260	SC-2
34	84	36	48	42	550	3800	240-260	SC-2
37	144	36	48	42	943	15000	240-270	SC-2
43	84	36	48	42	550	4500	240-260	SC-1
44	144	36	48	42	943	7500	240-260	SC-1
45	120	36	48	42	785	4800	250-280	SC-1
46	120	36	48	42	785	9500	275-300	SC-1
55	36	36	120	112	628	4000	250-280	SC-1
56	84	36	48	42	550	4500	275-300	SC-1
60	84	36	144	138	1807	9000	240-260	SC-1
61	84	36	144	138	1807	12000	240-260	SC-1
62	*NO RECTIFIERS CONNECTED, USED FOR CHROME RECYCLING ONLY.							SC-1
63	*NO RECTIFIERS CONNECTED, USED FOR CHROME RECYCLING ONLY.							SC-1
64A	24	48	52	46	229	4500	240-260	SC-2
64B	120	48	48	40	997	3000	325-425	SC-2
Cummulative Rectifier Amperage						152400		

Table 3.2
Expected Amperages during Testing

Tank Number	Total Rectifier Capacity	Expected Amperage During Testing	% of Total
18	10000	1600	16%
19	9000	3000	33%
20	7500	600	8%
21	1500	120	8%
23	12500	6000	48%
24	9000	3500	39%
31	4000	1000	25%
32	9300	1500	16%
33	7500	4000	53%
34	3800	1000	26%
37	15000	2500	17%
43	4500	500	11%
44	7500	2000	27%
45	4800	500	10%
46	9500	2800	29%
55	4000	800	20%
56	4500	1200	27%
60	9000	2300	26%
61	12000	2000	17%
62	0	0	
63	0	0	
64A	4500	2100	47%
64B	3000	1400	47%
	152400	40420	27%

4.0 SAMPLING AND ANALYTICAL METHODOLOGIES

Chromium sampling and analysis will be carried out in accordance with EPA Method 306A (60 FR 4986). The testing program will also utilize EPA Reference Methods 1 and 2.

4.1 Apparatus

Measurements of stack gas velocity and volumetric flow rate will be taken using a S-type pitot tube and an incline manometer. A protractor will be attached to the pitot tube for cyclonics verification. Stack gas temperatures will be taken with an digital thermometer and K-type thermocouple.

The sampling train probe assembly consists of a thick-wall polypropylene probe nozzle sheathed within a section of 0.75 inch steel conduit. The exposed tip of the polypropylene probe is beveled. The probe assembly is attached to an "mason jar" impinger train assembly by a flexible polypropylene sample line.

The sample train impinger assembly consists of three one-quart "mason jars" with Teflon vacuum seal lids. The sample line is connected to a polypropylene impinger tube that passes through the first jar's vacuum seal lid and terminates 3/16 inches from the bottom of the jar. This first jar contains 250 ml of 0.1 N sodium hydroxide. The first jar's vacuum seal lid has an outlet that is connected to the second jar via a similar polypropylene impinger tube that terminates 1 inches from the bottom of the empty second jar. The outlet of the second jar is attached to the third jar containing silica gel via an impinger tube terminating 1/2 inches above the bottom of the third jar. The third jar outlet is attached to approximately 10 feet of polypropylene tubing that in turn is attached to a Method 5 stack testing module.

A Method 5 stack testing module will be used to maintain and measure sample airflow. The ΔH will be set at the $\Delta H@$ for the module to maintain the airflow of 0.75 cfm. Pre-test and post-test calibration documentation for modules will be included in the test results report.

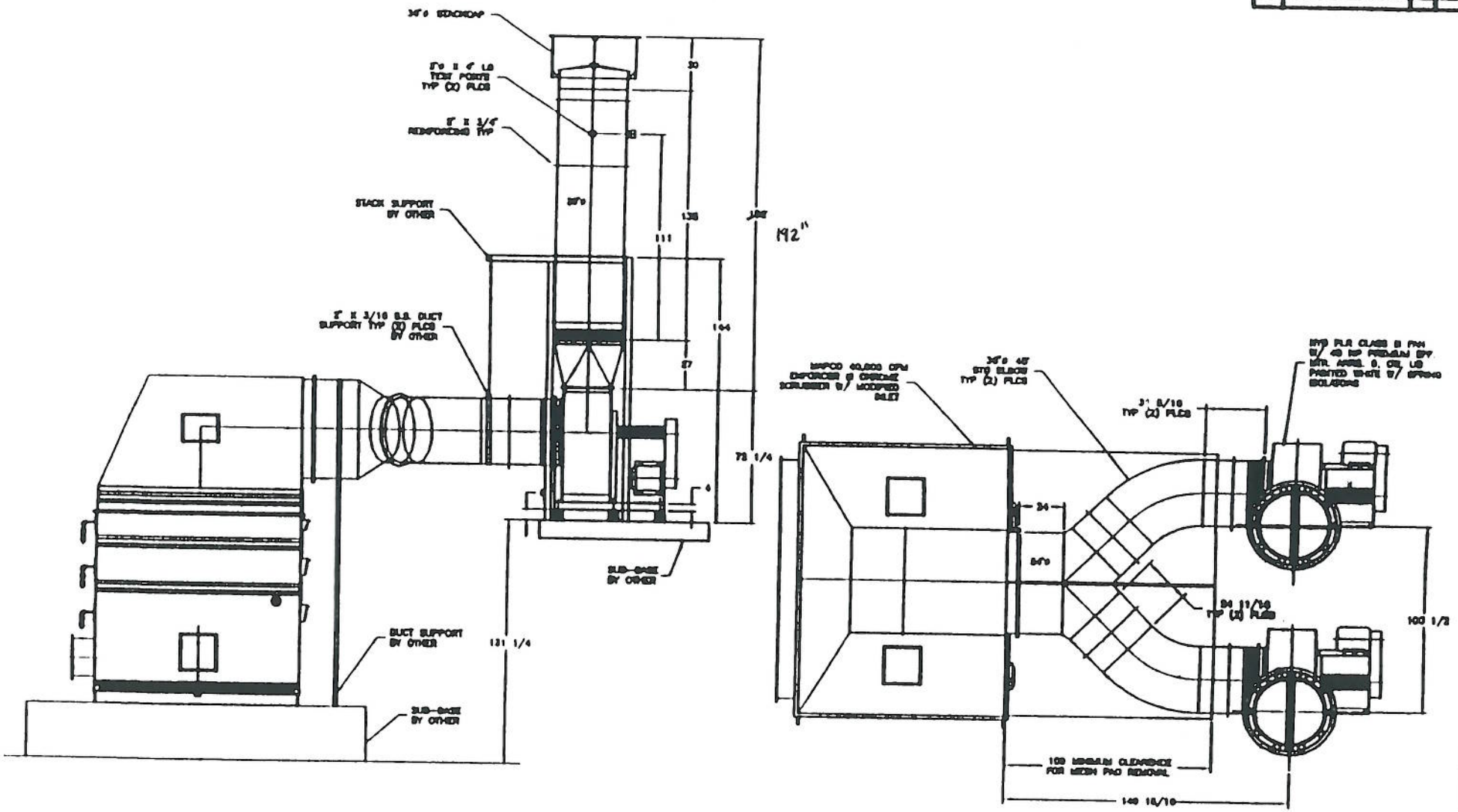
As mentioned earlier, the reagent used in the sampling train is 0.1N sodium hydroxide. A polypropylene wash bottle containing this sodium hydroxide solution will be used in all wash-down and recovery procedures.

4.2 Procedures

4.2.1 Measurement of Stack Gas Velocity

Sample port and traverse point locations will be determined in accordance with EPA Method 1. Diagram 4.1 and 4.2 illustrate the locations of

Diagram 4.1



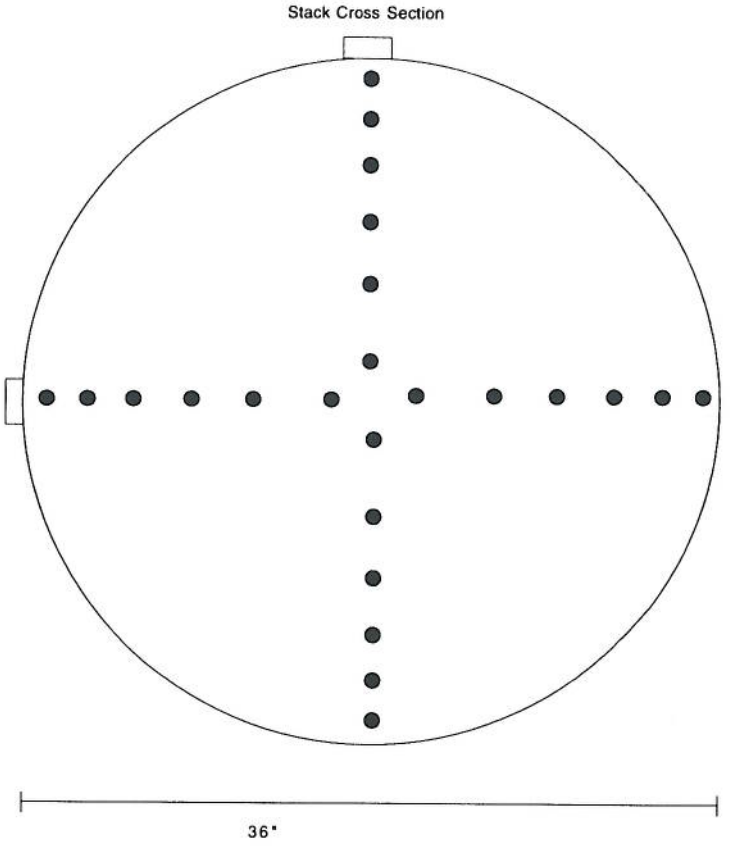
NOTES:

1. DUCT TO BE TYPE II/TYPE I GRAY PVC.
2. ALL DUCT ON ROOF TO BE TYPE II WHITE PVC.
3. INSTALL DAMPERS 18" UP IN RISERS.
4. 3/4 THK X 2 WIDE FLANGES ON EQUIPMENT.
5. CUSTOMER RESPONSIBLE FOR HANGERS, STACK SUPPORTS, SCRUBBER SUB-BASE, FAN SUB-BASE, ROOF OPENINGS AND FLASHINGS.

Diagram 4.2

TRAVERSE POINTS

TRAVERSE POINT	DISTANCE FROM WALL
1	1.0"
2	2.4"
3	4.2"
4	6.4"
5	9.0"
6	12.8"
7	23.2"
8	27.0"
9	29.6"
10	31.8"
11	33.6"
12	35.0"



KEY:

CUSTOMER: Superior Plating Company

LOCATION: Southport Connecticut

TITLE: Traverse Point Locations

AIR TOX ENVIRONMENTAL CO., INC.
165 RIVER ROAD, PO BOX 239 WILLINGTON, CONNECTICUT 06279

DATE MADE: 6/23/97	DATE PRINTED:	DATE REVIEWED:
PROJECT NO:	DRAWING NO.:	PAGE NO.:
PREPARED BY: DEA	REVIEWED BY:	APPROVED BY:

the sample ports and traverse points. Measurements of ΔP and cyclonic flow will be taken at each of the twelve traverse points in ports 1 and 2. The ΔP measurements will be taken using the S-type pitot tube and incline manometer. The flow angle measurements will be taken at each traverse point using a inclinometer attached to the pitot tube. These measurements will be taken once at the beginning of the test day.

The ΔP numbers will be input into a computer spreadsheet that will calculate the "point sampling times" according to equation 306A-1 of the method. The flow angles will also be averaged to verify the average is less than 20 degrees thus verifying that cyclonics are within acceptable limits.

4.2.2 Sampling

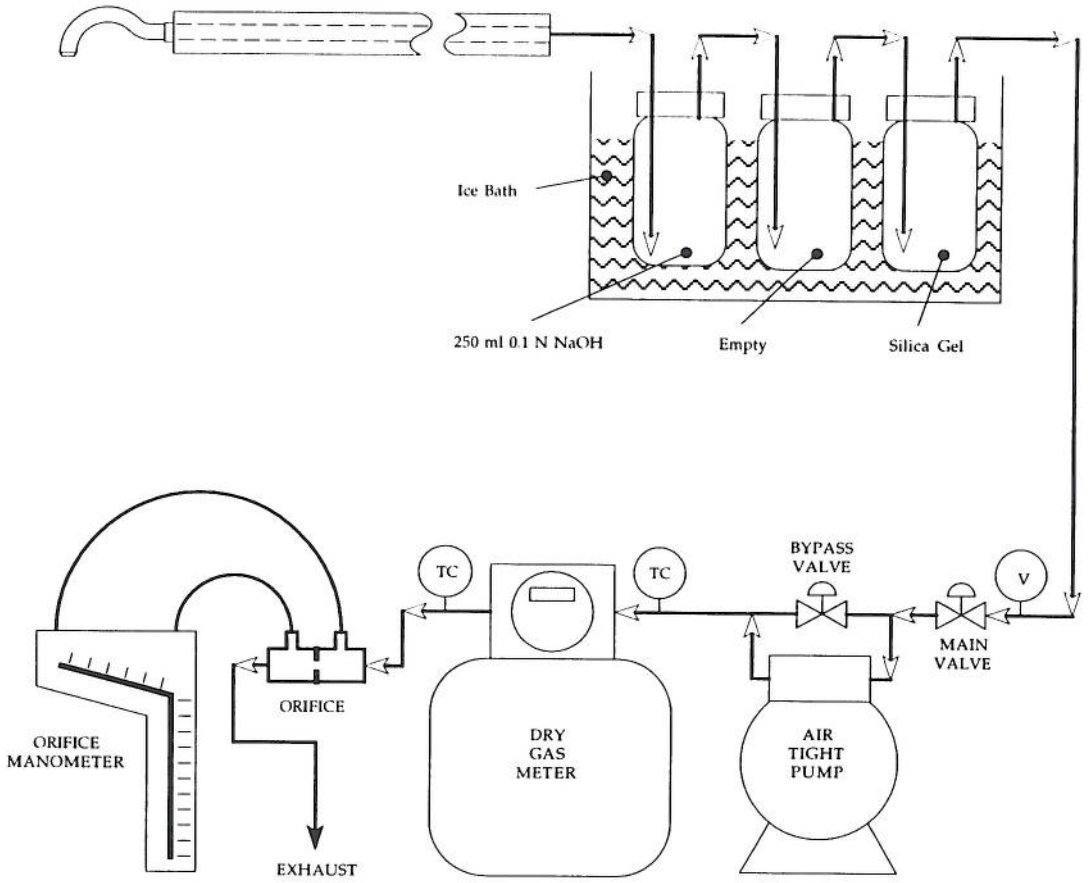
The sampling train will be assembled as shown in Diagram 4.3. The first impinger jar will be pre-rinsed with 0.1N sodium hydroxide and then charged with 250 ml of 0.1N sodium hydroxide. The second impinger jar will also be rinsed with the 0.1N sodium hydroxide and then left empty. The third impinger jar will be charged with silica gel. After charging, the three impinger jars will be iced down. The sample train will be leak checked prior to each testing period.

After leak checking the sampling train, the probe/nozzle will be inserted into the stack at port 1, traverse point 1. The vacuum pump will be turned on and a correct vacuum pressure will be set immediately. The probe nozzle will be held at each traverse point for the time interval calculated for that point. At the end of the first port traverse, the vacuum pump will be turned off until the probe is moved into port 2. Port 2 will be traversed in the same manner as the first port. The overall duration of each sample run will be two hours. Each point sampling time will be calculated per the following equation.

$$\text{Minutes at point n} = \frac{\sqrt{\text{Point n } \Delta P}}{\left(\sqrt{\Delta P}\right)\text{avg}} \text{ x 5.0 minutes}$$

After the sample train passes a post-test leak check, the sample will be recovered. The first jar will function as the sample container jar. The outside of the first impinger stem will be rinsed into the first jar as well as the contents of the second jar and the tube that connects the first and second jar. The probe/nozzle and sampling line are also rinsed into the first jar. This is done by injecting the 0.1N sodium hydroxide into the end of the probe/nozzle and sampling line while drooped between two people and then raising the tubing to force the sodium hydroxide down the tube to be released into the first impinger jar. This will be repeated three times. The collected sample will be sealed in the jar and labeled with a sample number. The liquid level will be marked to gauge any sample loss.

Diagram 4.3



KEY:	CUSTOMER: Superior Plating	AIR TOX ENVIRONMENTAL CO., INC. 165 RIVER ROAD, PO BOX 239 WILLINGTON, CONNECTICUT 06279		
	LOCATION: Southport, Connecticut			
	TITLE: Method 306A Sampling Train	DATE MADE: 3/18/97	DATE PRINTED:	DATE REVIEWED:
		PROJECT NO:	DRAWING NO.:	PAGE NO.:
		PREPARED BY: DEA	REVIEWED BY:	APPROVED BY:

4.2.3 Laboratory Analysis

Each of the sampling procedures outlined above will be repeated until three two-hour samples have been collected for each stack. These samples will then be sent to Environmental Health Labs (EHL) of Cromwell, Connecticut. EHL is an accredited laboratory for this type of analysis. In accordance with method 306A, the samples will be analyzed by atomic adsorption spectrophotometry (AA). Prior to being analyzed by the AA, the samples will be digested with acid to concentrate the sample and provide a lower detection limit. The lower detection limit for the AA is <2.5 ug based on an average sample volume of 500 ml. EHL's "Standard Operating Procedures" (SOP) have been reviewed and approved by Jack Harvanek of the U.S. EPA.

5.0 QUALITY ASSURANCE

The project manager is responsible for implementation of the quality assurance program as applied to this project. Implementation of quality assurance procedures for source measurement programs is designed so work is done:

- By competent, trained individuals experienced in the methodologies being used.
- Using properly calibrated equipment.
- Using approved procedures for sample handling and documentation.

Measurement devices, pitot tubes, dry gas meters, and thermocouples are uniquely identified and calibrated with documented procedures and acceptance criteria before and after each field effort. Records of all calibration data are maintained in the files.

Data are recorded on standard forms. Bound field notebooks are used to record observations and miscellaneous elements affecting data, calculations, or evaluation.

Prior to the test program Air Tox provides calibrations of all pitot tubes, dry gas meters, orifice meters, sampling nozzles, and thermocouples which are used during the test. All calibrations are performed within four months prior to the test date.

Probe and fiber bed temperatures will be +/- 25 °F of the specified temperature.

In addition to the test samples, blank samples of reagents will be collected at the test site for background analyses. All blank samples will be analyzed in conjunction with actual test samples. Sampling results will be corrected for these backgrounds if required.

Appropriate sample recovery data will be recorded on the sample identification and handling logs, chain of custody forms and analytical data forms as presented in the Appendix. Recovered samples will be stored in shock-proof containers for storage and shipment for analyses.

Specific details of Air Tox's QA program for stationary air pollution sources may be found in "Quality Assurance Handbook for Air Pollution Measurement Systems", Volume III (EPA-600/4-7-027b).

Appendix

NOTIFICATION OF PERFORMANCE TEST

(This notification is not required if you do not have to conduct a performance test under the regulation.)

Applicable Rule: 40 CFR Part 63, Subpart N--National Emission Standards for Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks

1. Print or type the following for each plant in which chromium electroplating and/or chromium anodizing operations are performed:

Owner/Operator/Title JOHN RAYMOND, PRESIDENT

Street Address LACEY PLACE

City SOUTHPORT State CONNECTICUT Zip Code 06490

Plant Name SUPERIOR PLATING COMPANY

Plant Phone Number (203) 255-1501

Plant Contact/Title RICHARD DURAZZO

Plant Address (if different than owner/operator's):

Street Address SAME AS ABOVE

City _____ State _____ Zip Code _____

2. Complete the following table. If additional lines are needed, make copies of this page.

Type of control technique	Control System ID #	ID # of tank ducted to control system	Type of tank	Date of performance test
COMPOSITE MESH PAD MIST ELIMINATOR	SC-1	44, 43, 45, 46, 55, 56, 60, 61, 62, 63	ALL TANKS ARE HARD CHROME	10/13/98
COMPOSITE MESH PAD MIST ELIMINATOR	SC-2	31, 32, 33, 34, 37, 64A, 64B	ALL TANKS ARE HARD CHROME	10/14/98

NOTIFICATION OF PERFORMANCE TEST

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Plant Phone Number (203) 255-1501

Plant Contact/Title RICHARD DURAZZO

Plant Address (if different than owner/operator's):

Street Address SAME AS ABOVE

City _____ State _____ Zip Code _____

2. Complete the following table. If additional lines are needed, make copies of this page.

Type of control technique	Control System ID #	ID # of tank ducted to control system	Type of tank	Date of performance test
COMPOSITE MESH PAD MIST ELIMINATOR	SC-3	18, 19, 20, 21, 23, 24	ALL TANKS ARE HARD CHROME	10/15/98

Source Test Form No.1

INTENT TO TEST

CT Department of Environmental Protection, Bureau of Air Management/ I & E, 79 Elm Street Hartford Connecticut 06106-5127

ITT # Assigned: _____

I. Source Information

Person or Persons Responsible for Test

Company: SUPERIOR PLATING
Source Address: LACEY PLACE
City&Zip: SOUTHPORT, CT 06490
Contact: RICH DURAZZO
Telephone: (203)255-1501

II. Billing Information

(Reg 22a-174-26(b))

Company: SUPERIOR PLATING
Billing Address: LACEY PLACE
City&Zip: SOUTHPORT, CT 06490
Billing Contact: RICH DURAZZO
Telephone: (203)255-1501

III. Tester Information

Person Responsible for Test

Company: AIR TOX ENVIRONMENTAL
Address: 165 RIVER ROAD
City&Zip: WILLINGTON, CT 06279
Contact: DAN AUNE
Telephone: (860)487-5606
Signature: _____ Date: 6/18/
(Person Performing Source Test)

IV. CT. Registration or Permit No.

Town | Premise | Reg or Permit | Stack

V. Identify Equipment and Stack to be Tested:

THREE DUAL STACK COMPOSITE MESH PAD MIST ELIMINATORS SC-1, SC-2, SC-3 (SIX STACKS)

VI. Gas Stream Sampling Information. Identify all Gas Steam Components to be Sampled.

Gas Stream Components	Sampling Duration		Number of Tests	Expected Concentrations	Brief Description of the test method to be used for each pollutant
	Minutes per point	Total Test Time	3 Min.		
TOTAL CHROMIUM	TBD	120 MIN.	3 PER STACK	LESS THAN 0.005 MG/DSCM	U.S. EPA METHOD 306A

Chromium Field Data Sheet

USEPA Reference Method 306A

Circular Duct

Facility:

Location:

Operator:

Date: / /

Run No.

Stack No. or ID

Stack Diameter

Pitot Coeff. (Cp)

Baro. Press (Pbar) "Hg

Port #	Point No.	ΔP	Cyclonics	Port #	Point No.	ΔP	Cyclonics
1	1			2	1		
	2				2		
	3				3		
	4				4		
	5				5		
	6				6		
	7				7		
	8				8		
	9				9		
	10				10		
	11				11		
	12				12		

Chromium Field Data Sheet

USEPA Reference Method 306A

(2 Hour Test)

Facility: _____ Stack No. or ID _____

Location: _____ Stack Diameter _____ in.

Operator: _____ Calibration Factor (Y) _____

Date: _____ Pitot Coeff. (Cp) _____

Run No. _____ Baro. Press (Pbar) _____ "Hg

Leak rate before run _____ cfm Leak rate after run _____ cfm

Stack Temp. Start _____ °F Stack Temp. End _____ °F

Meter Volume Start _____ cu. ft. Meter Volume End _____ cu. ft.

	SAMPLE PORT#1				SAMPLE PORT #2		
Point No.	Time (minutes)	Total Time (minutes)	Meter Temp. (deg F)	Point No.	Time (minutes)	Total Time (minutes)	Meter Temp. (deg F)
1				1			
2				2			
3				3			
4				4			
5				5			
6				6			
7				7			
8				8			
9				9			
10				10			
11				11			
12				12			

Total Sample Volume _____ cu. ft. Average Meter Temp. _____ (deg F)

(End Volume - Start Volume)

Compliance Test
Calculated Stack Concentration - Chromium

$$C_{Cr(mg/dscm)} = \frac{(M_{Cr})(T_m + 460)}{(499.8)(Y_m)(V_m)(P_{bar})}$$

$$C_{Cr(\mu g/acm)} = \frac{C_{Cr\,(mg/dscm)} * 1000}{(T_s/528°R) * (29.92/P_{abs}) * (100/(100-\%H2O))}$$

$$mg/hr = (C_{Cr(\mu g/acm)} * (Q_{actm} * .02832) * 60)/1000$$

M_{Cr}= Amount of Cr in sample (µg)
T_m= Dry gas meter temperature
Y_m= Dry gas meter correction factor
V_m= Dry gas meter volume (ft^3)
P_{bar}= Barometric pressure
$\%H_2O$= Percent H_2O
P_s= Static Pressure

Test #1

$C_{Cr(mg/dscm)}$= 0.0000
$C_{Cr(\mu g/acm)}$= 0.00
mg/hr = 0.00
M_{Cr}= 0
T_m= 80
Y_m= 1
V_m= 90
P_{bar}= 29.00
T_s= 80
Assumed $\%H_2O$= 2
P_s= 0.03
Q_{actm}= 20000

Test #2

$C_{Cr(mg/dscm)}$= 0.0000
$C_{Cr(\mu g/acm)}$= 0.00
mg/hr = 0.00
M_{Cr}= 0
T_m= 80
Y_m= 1
V_m= 90
P_{bar}= 29.00
T_s= 80
Assumed $\%H_2O$= 2
P_s= 0.03
Q_{actm}= 20000

Test #3

$C_{Cr(mg/dscm)}$= 0.0000
$C_{Cr(\mu g/acm)}$= 0.00
mg/hr = 0.00
M_{Cr}= 0
T_m= 80
Y_m= 1
V_m= 90
P_{bar}= 29.00
T_s= 80
Assumed $\%H_2O$= 2
P_s= 0.03
Q_{actm}= 20000

Averages:

$C_{Cr(mg/dscm)}$= 0.0000
$C_{Cr(\mu g/acm)}$= 0.00
mg/hr = 0.00

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CHAIN OF CUSTODY

AIR TOX ENVIRONMENTAL COMPANY, INC.

165 River Road

Willington, CT 06279

PROJECT DESCRIPTION _____ PROJECT NO. Compliance Test PROJECT NAME _____

FIELD SAMPLE NUMBER	DATE	TIME	COMPOSITE OR GRAB	ANALYSIS REQUIRED	SAMPLING TRAIN	SAMPLE DESCRIPTION	SPECIAL NOTES	SEND TO:
Test 1			Composite	Total Chromium by AA - with digestion	306A	0.1 N NaOH	Please digest sample and perform analysis in accordance with 306A	EHL-Cromwell, CT
Test 2			Composite	Total Chromium by AA - with digestion	306A	0.1 N NaOH	Please digest sample and perform analysis in accordance with 306A	EHL-Cromwell, CT
Test 3			Composite	Total Chromium by AA - with digestion	306A	0.1 N NaOH	Please digest sample and perform analysis in accordance with 306A	EHL-Cromwell, CT
Blank		n/a	Grab	Total Chromium by AA - with digestion	306A	0.1 N NaOH	Please digest sample and perform analysis in accordance with 306A	EHL-Cromwell, CT
	Please Fax Results to Air Tox Environmental @ 860-487-5607							

Relinquished by: (Signature)	DATE/TIME	Received by:(Signature)	DATE/TIME	
Relinquished by: (Signature)	DATE/TIME	Received by:(Signature)	DATE/TIME	
Relinquished by: (Signature)	DATE/TIME	Received by:(Signature)	DATE/TIME	
Relinquished by: (Signature)	DATE/TIME	Received by:(Signature)	DATE/TIME	

Method 5 Module Calibration Worksheet
Pre-Test Calibration

Module #	2	Run Number				
Date	4/6/98	1	2	3	4	5
Calibration Orifice #		1	2	3	4	5
Orifice Coefficient (K')		0.446	0.514	0.665	0.938	0.999
Final Vm	(ft^3)	933.77	943.97	954.30	964.70	975.32
Initial Vm	(ft^3)	923.75	933.95	944.10	954.65	965.30
Difference Vm	(ft^3)	10.02	10.02	10.20	10.05	10.02
Inlet Temp.						
Initial	(°F)	69	72	73	78	80
Final	(°F)	73	73	81	78	80
Inlet Average	(°F)	71	73	77	78	80
Outlet Temp.						
Initial	(°F)	68	69	70	72	73
Final	(°F)	69	70	71	73	74
Outlet Average	(°F)	69	70	71	73	74
Average Meter Temp.	(°F)	70	71	74	75	77
Time	(0.00 min)	17.82	15.40	12.33	8.57	8.01
ΔH	("WC)	0.98	1.4	2.15	4.40	5.00
Barometric Pressure	("Hg)	29.70	29.70	29.70	29.70	29.70
Ambient Temp.	(°F)	68	68	69	70	70
Pump Vacuum	("Hg)	20	20	15	15	15
Vm(std)	cu. ft.	9.934	9.919	10.065	9.944	9.901
Vcr(std)	cu. ft.	10.273	10.231	10.588	10.371	10.323
Cal Factor (Y)	-	1.034	1.031	1.052	1.043	1.043
ΔH@		1.649	1.710	1.628	1.691	1.695

Averages

Cal Factor (Y)	1.041
ΔH@	1.674

Pre-Test Calibration: Perform one >10 cf run with each orifice.

Post-Test Calibration: Perform three >10 cf runs with orifice corresponding to average Delta H from test program.

Each Y must be within ±2% of average.

Individual ΔH@'s must be ±0.20 from average.

Method 5 Module Calibration Worksheet
Post-Test Calibration

Module #	2	Run Number		
Date	4/28/98	1	2	3
Calibration Orifice #	-	3	3	3
Orifice Coefficient (K')	-	0.665	0.665	0.665
Final Vm	(ft^3)	131.31	141.32	151.33
Initial Vm	(ft^3)	121.30	131.31	141.32
Difference Vm	(ft^3)	10.01	10.01	10.01
Inlet Temp.				
Initial	(^{0}F)	69	75	80
Final	(^{0}F)	77	80	86
Inlet Average	(^{0}F)	73	78	83
Outlet Temp.				
Initial	(^{0}F)	66	68	70
Final	(^{0}F)	68	70	72
Outlet Average	(^{0}F)	67	69	71
Average Meter Temp.	(^{0}F)	70	73	77
Time	(0.00 min)	12.28	12.23	12.22
ΔH	("WC)	2.2	2.2	2.2
Barometric Pressure	("Hg)	30.02	30.02	30.02
Ambient Temp.	(^{0}F)	72	73	72
Pump Vacuum	("Hg)	20	20	20
Vm(std)	cu. ft.	10.054	9.993	9.923
Vcr(std)	cu. ft.	10.629	10.575	10.577
Cal Factor (Y)	-	1.057	1.058	1.066
ΔH@		1.631	1.624	1.609

Averages

Cal Factor (Y)	**1.060**
ΔH@	**1.621**

Pre-Test Calibration: Perform one >10 cf run with each orifice.

Post-Test Calibration: Perform three >10 cf runs with orifice corresponding to average Delta H from test program.

Each Y must be within ±2% of average.

Individual ΔH@'s must be ±0.20 from average.

Environmental Company
AIR TOX
Environmental Solutions For Today's Industries

March 5, 1998

Mr Roy Crystal
U.S. EPA Region 1
Mail Code: SEA
Air Pesticides & Toxics
JFK Federal Building
Boston, MA 02203

RE: Update on Superior Plating Compliance Efforts.

Dear Mr. Crystal,

Since I last spoke with you, much effort has been expended in bringing Superior Plating of Southport, Connecticut closer to compliance with the chromium MACT Standard. Actions have been taken to reduce chromium emissions from the existing fiber bed demister control devices as well as actions towards the completion of the installation of the three new composite mesh pad control devices. The purpose of this letter is to update you on these actions.

As you suggested, Superior Plating has installed floating anti-pollution balls in all of their chromium electroplating tanks. The installation of these balls has reduced chromium emissions from each of their two fiber bed demister (FBD) control devices. Preliminary emissions testing has demonstrated a reduction from 0.035 to 0.028 mg/dscm for FBD #2 and a reduction from 0.028 to 0.020 mg/dscm for FBD #3. This interim action was designed to reduce chromium emissions from the facility until Superior has completed the installation of the three new 40,000 cfm composite mesh pad control devices which are guaranteed by the manufacturer to reduce emissions to less than 0.002 mg/dscm.

In addition to using the anti-pollution balls, Superior continues to operate and maintain the existing FBD control devices according to their operations and maintenance plan, and will do so until the new systems are brought on-line.

Contrary to my previous predictions, the size and complexity of the control device installation project is requiring additional time and money. The revised target date for completing all three installations is early

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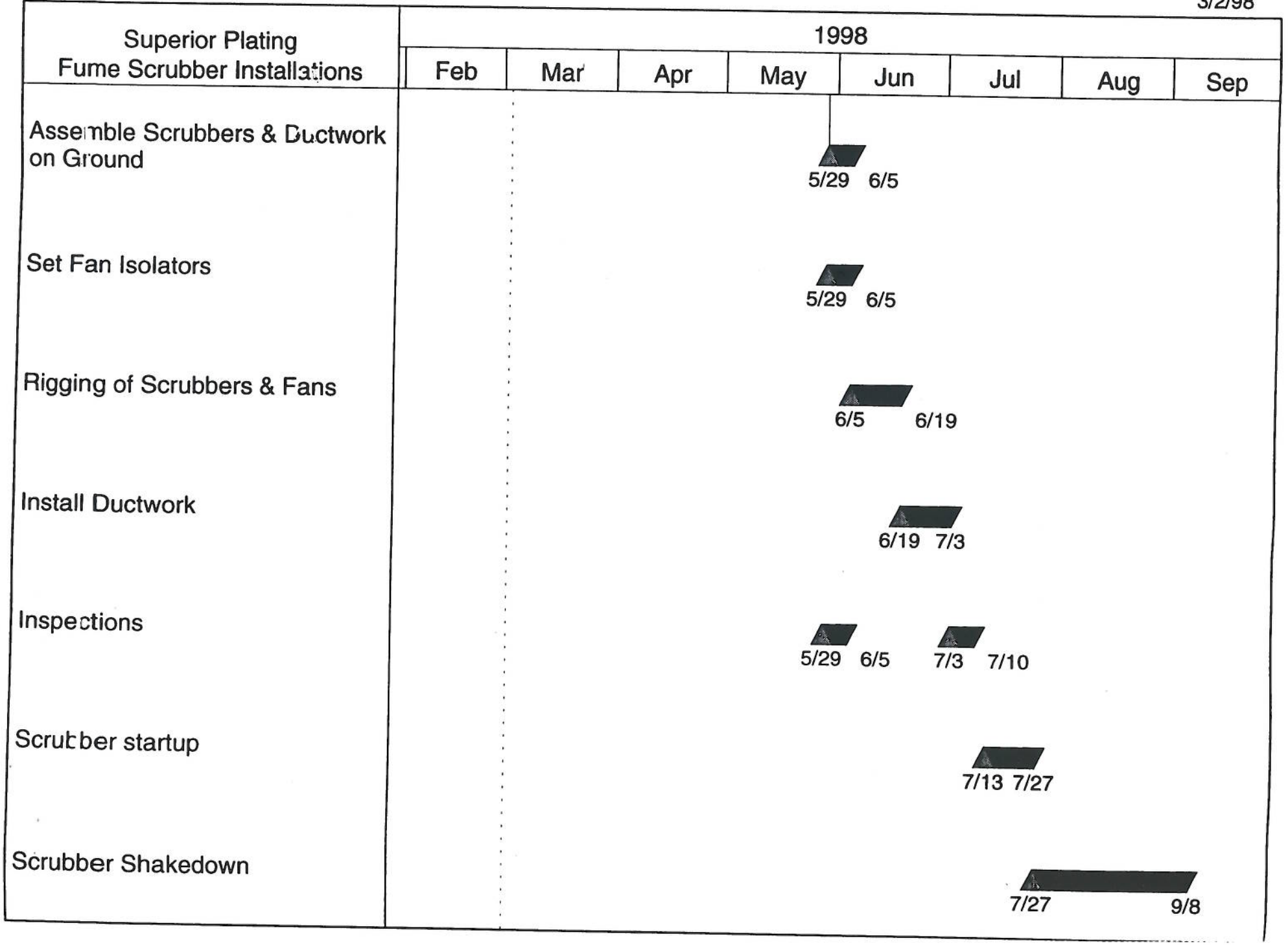
September 1998, with a revised cost exceeding $900,000. As of this date, the installation contractor has begun prefabrication of the steelwork required to support the control devices as well as submitting applications for contruction permits to local agencies. I have included a revised Gantt chart, that outlines the project schedule, and the final project drawings with this letter. As this project progresses, Superior Plating will keep the EPA informed of any changes in the installation schedule.

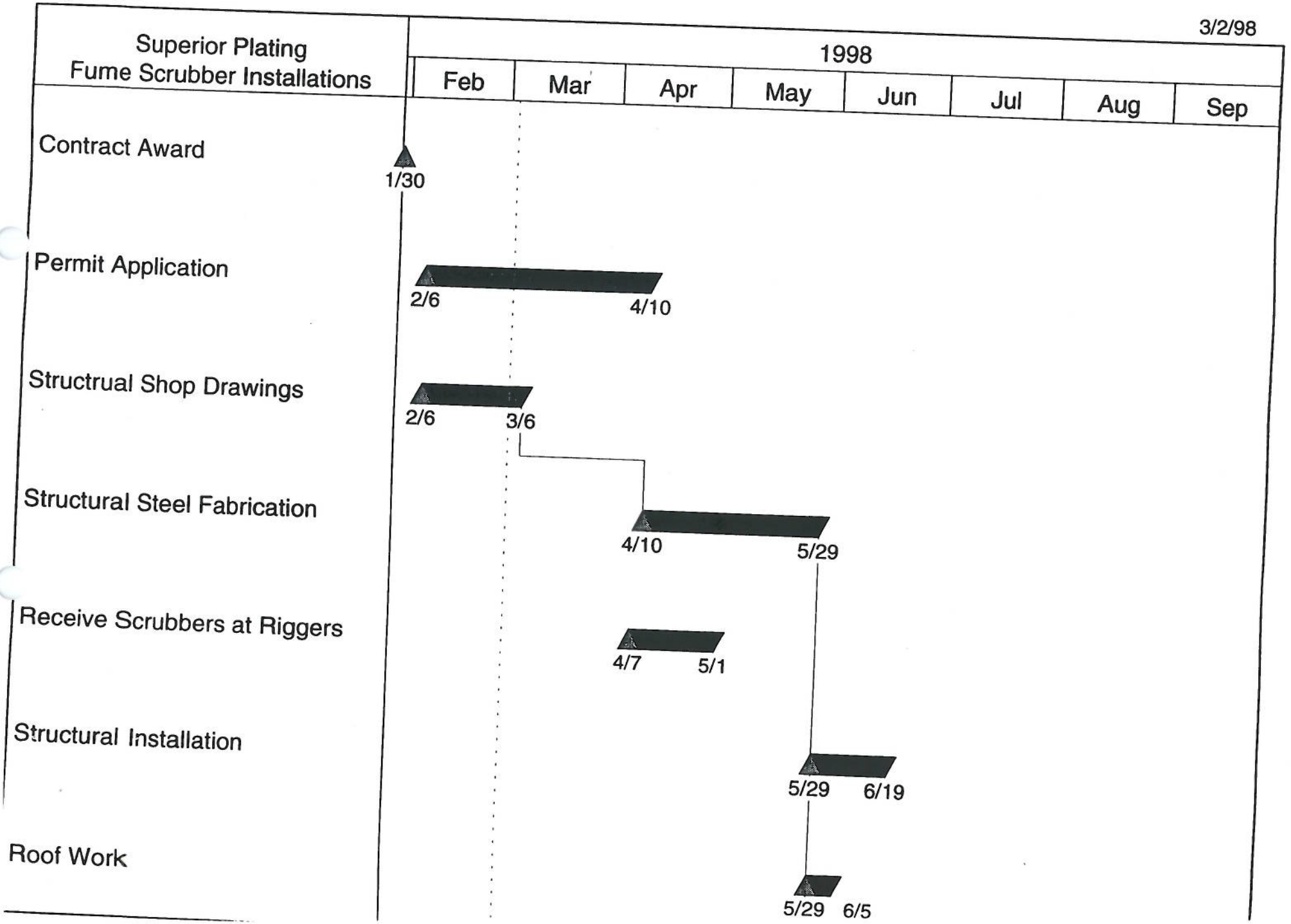
If you have any questions or further information, please feel free to contact me at (860) 487-5606.

Thank you,
Air Tox Environmental Company, Inc.

Dan Aune
Project Manager

3/2/98


Superior Plating
Fume Scrubber Installations
1998
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Assemble Scrubbers & Ductwork on Ground
5/29
6/5
Set Fan Isolators
5/29
6/5
Rigging of Scrubbers & Fans
6/5
6/19
Install Ductwork
6/19
7/3
Inspections
5/29
6/5
7/3
7/10
Scrubber startup
7/13
7/27
Scrubber Shakedown
7/27
9/8


Superior Plating
Fume Scrubber Installations
3/2/98
1998
Feb
Mar
Apr
May
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Aug
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Contract Award
1/30
Permit Application
2/6
4/10
Structrual Shop Drawings
2/6
3/6
Structural Steel Fabrication
4/10
5/29
Receive Scrubbers at Riggers
4/7
5/1
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Dan Aune
Project Manager

Environmental Company
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March 5, 1998

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JFK Federal Building
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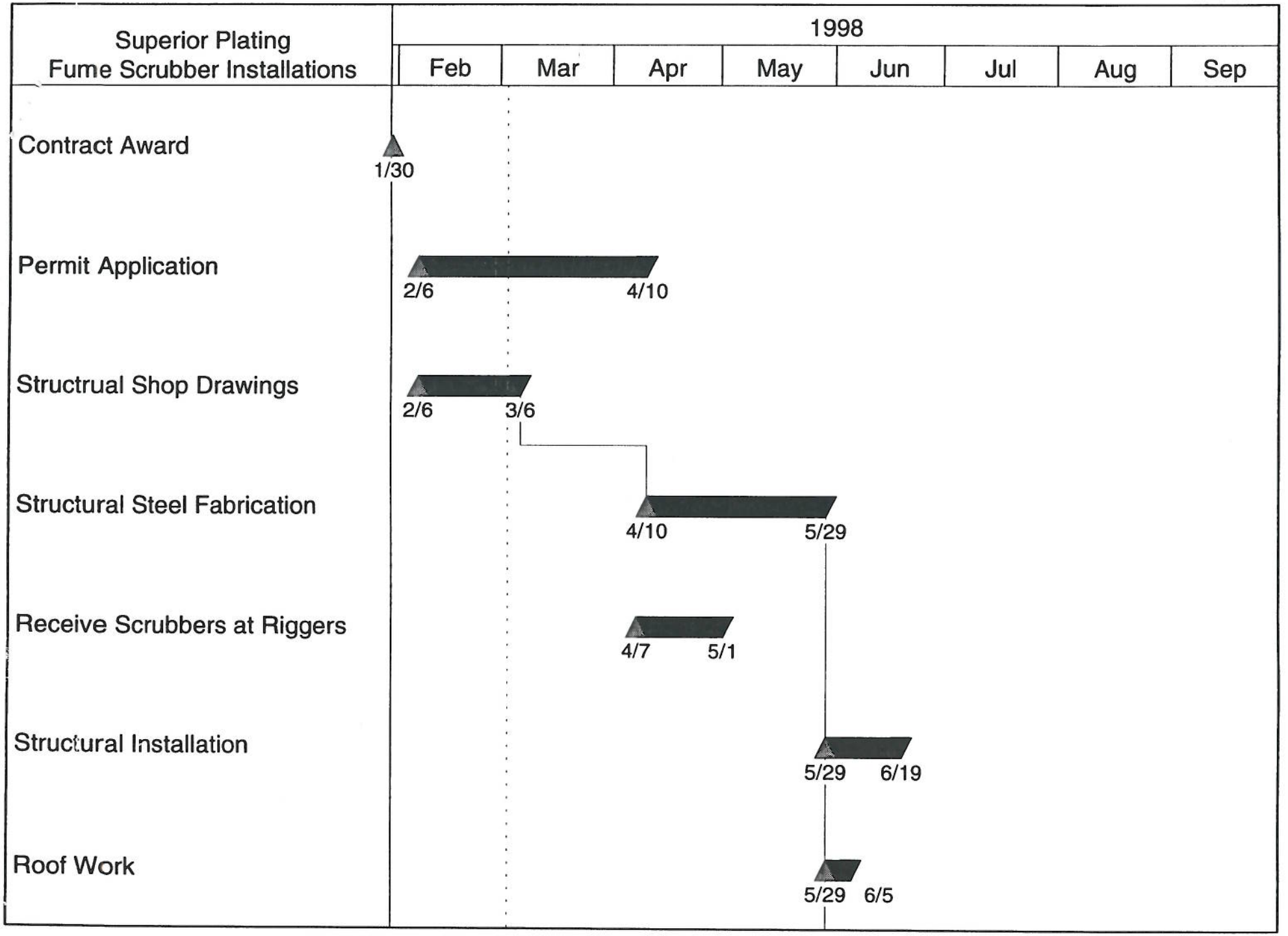
3/2/98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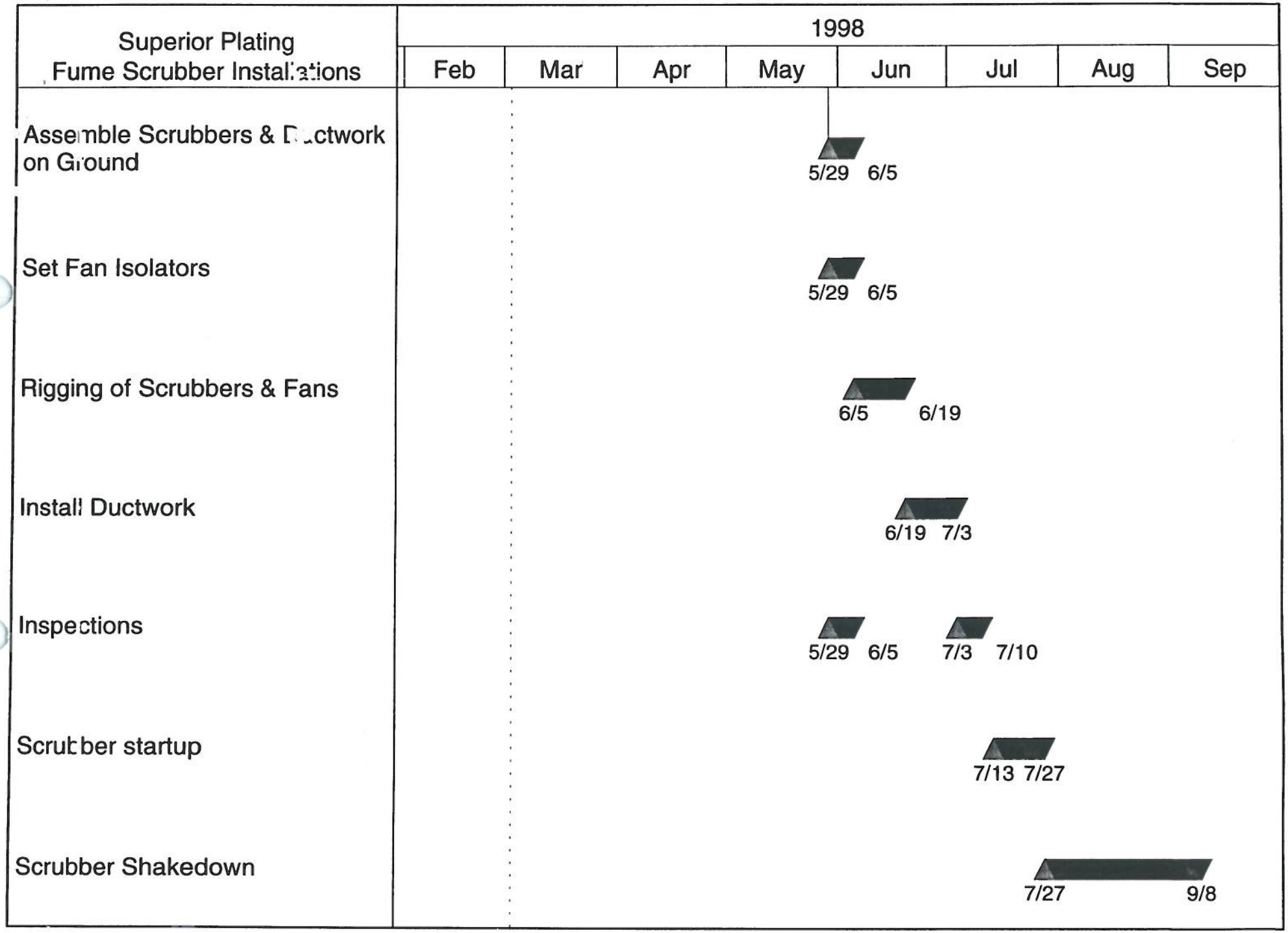
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7/3
7/10
Scrubber startup
7/13
7/27
Scrubber Shakedown
7/27
9/8

Environmental Company
AIR TOX
Environmental Solutions For Today's Industries

February 12,1998

Mr. Robert LaFrance
Bureau of Air Management
Department of Environmental Protection
79 Elm Street, Fifth Floor
Hartford, CT 06106-5127

RE: Notice of Violation Number 13618

Dear Mr. LaFrance:

As a result of non-compliance with the chromium MASC standard, Superior Plating of Southport is currently undertaking the following corrective actions:

1. Superior Plating will replace the two existing fiber-bed demisters with three new 40,000 cfm composite mesh pad mist eliminators guaranteed to reduce emissions to less than 0.002 mg/dscm. Each control device will utilize two fans each rated at 20,000 cfm. Discharge points will be located at least 65 feet from the nearest property line.
2. Superior Plating will cover all tanks with antipollution floating balls to reduce the overall surface area of each tank. These floating balls should reduce the amount of chromium mist entering the existing ducting. Preliminary testing will be done to determine the emissions control effectiveness of the balls.
3. Superior will continue to maintain the existing fiber-bed mist eliminators according to their Operations and Maintenance plan until the new control devices are installed and functioning.

INSTALLATION OF NEW COMPOSITE MESH PAD SCRUBBERS

Superior has chosen to install three new 40,000 cfm composite mesh pad mist eliminators (CMPs). The manufacturer of these CMPs, Midwest Air Products Company of Traverse City, Michigan, guarantees they will reduce chromium emission to less than 0.002 mg/dscm. The installation of these new CMPs will require Superior to retrofit the ventilation systems in their entire facility. Completely new ducting will be installed and the existing ducting will be abandoned. Large scale structural and mechanical modifications will also have to be made to Superior's facility to accommodate the installation. Preliminary drawings for the installation were included as an attachment to the previously submitted

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stack sampling report. The expected cost of these new ventilation systems and installation will exceed $900,000. Superior is dedicating all available resources to the prompt and successful completion of this installation project. Estimated completion date for this project is in September 1998.

CONCLUSION

Superior has purchased new state-of-the-art control devices and is currently expediting installation of these devices. In the interim, Superior will cover all tanks with antipollution floating balls to reduce the amount of chromium mist entering existing control devices. In addition, Superior will continue to maintain the existing FBD control devices to minimize chromium emissions until the new CMP control devices are installed and functioning.

If you have any questions or require further information, Please do not hesitate to contact me at (860)487-5606.

Sincerely,
Air Tox Environmental Company Inc.

Dan Aune
Project Manager

COMPLIANCE STATEMENT

This Compliance Statement shall be signed by: (I) You (if an individual-the individual signs); (if a corporation or partnership-by a responsible corporate officer/general partner or duly authorized representative of such person, as those terms are defined in Section 22a-430-3(b)(2) of the Regulations of Connecticut State Agencies); or (if a municipality-chief elected official or principal executive officer) and (II) if different, by the individual responsible for actually preparing such statement, each of whom shall read and sign the certification regarding false statements on the Compliance Statement.

Within fifteen days of the date you become aware of a change in any information in the Compliance Statement, or that any information was inaccurate or misleading or that any relevant information was omitted, submit the correct or omitted information to the staff contact identified on the Notice of Violation.

Notice of Violation No	13618
Facility Name	Superior Plating Co
(Site)Address	Lacey Place
	Southport, CT 06490

In accordance with the directions in the above-referenced Notice of Violation, I certify that the noted violation has been corrected in the following manner:

Attach additional sheet(s) as needed
(Enclose supporting documentation demonstrating compliance)

Certification of Accuracy

I certify that the information in this Compliance Statement and any attachments thereto are true, accurate and complete, and I understand that any false statement may be punishable as criminal offense under Connecticut General Statutes Section 22a-6 and 53a-157.

2-13-98
Date
(203) 255-1501
Telephone

2/13/98
Date
(860)667-5606
Telephone

Richard Durazzo
Signature
Richard Durazzo, Environmental Mgr.
(Type name and Title)
Lacey Place, Southport, Ct.
Address

Dan Aune / Air Tox Env.
Preparer's Signature, if different than above
DAN AUNE, PROJECT MANAGER
(Type name and Title)
165 RIVER ROAD, WILLINGTON CT
Address

2.0 TEST RESULTS AND DISCUSSION

The purpose of this testing program was to demonstrate compliance with the National Emissions Standards for Chromium Emissions from Hard and Decorative Chromium Electroplating and Anodizing Tanks, which were published in the Federal Register on January 25, 1995.

Superior Plating utilizes two fiber bed demisters (FBDs) to control chromium emissions from 21 hard chrome electroplating tanks. The chromium mist generated by the tanks is pulled from each tank through single sided lateral exhaust hoods and then through a tunnel system to FBD #2 or FBD #3. Schematics of the tunnel configuration were included in the Appendix of the previously submitted protocol. A 23,000 acfm fan is utilized to pull the vapors through FBD #2 and out through a 48" X 48" square stack, and a 45,000 acfm fan is utilized to pull the vapor through FBD #3 and out through a 48" X 48" square stack.

Chromium sampling and analysis was carried out on each of the two stacks in accordance with EPA Method 306A (60 FR 4986). The test program also utilized EPA Reference Methods 1 and 2. As specified in Method 306A, three two-hour sample tests were completed for each stack. Analysis of the test samples were performed by an accredited laboratory for total chromium. The total chromium content and test data was then used to calculate the total chromium emissions rate for each test in mg/dscm. The average emissions rate for the three sample tests per stack was 0.035 mg/dscm for FBD #2 and 0.028 mg/dscm for FBD #3 as presented in Table 2.1. This testing demonstrated that the chromium emissions from the FBDs are greater than the applicable emission limit of 0.015 mg/dscm when the electroplating processes are operating at maximum attainable amperage.

Table 2.1

FBD #	Test #	Time	Emissions Rate (in mg/dscm)
2	1	9:10 - 11:10	0.048
2	2	11:22 - 13:25	0.030
2	3	13:38 - 15:45	0.026
Average 2			**0.035**
3	1	9:10 - 11:10	0.026
3	2	11:22 - 13:25	0.029
3	3	13:38 - 15:45	0.028
Average 3			**0.028**

Environmental Company
AIR TOX
Environmental Solutions For Today's Industries

February 17, 1998

Elizabeth McAulife
CT Department of Environmental Protection
Bureau of Air Management
79 Elm Street
Hartford, CT 06106

Dear Ms. McAulife,

This letter is in response to a "Group MACT Notice of Application Required" dated January 20, 1998 regarding the following facility:

Superior Plating Company
Lacey Place
Southport, Connecticut 06490

The "Group MACT Notice of Application Required" notification indicated that Superior must complete a Title V permit application no later than April 23, 1998.

Superior is not a major source as defined under 40 CFR 70.2, but is a Title V source because of the applicability of 40 CFR Part 63, Subpart N - National Emission Standard for Chromium Emissions From Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks. According to 40 CFR 63.340 (e)(2), sources subject to 40 CFR 63 Subpart N that are "not major or located at major sources may be deferred by the applicable Title V permitting authority from Title V permitting requirements for 5 years after the date on which the EPA first approves a part 70 program..." Sources covered by this deferral shall submit Title V applications no later than 12 months from the deferred date.

Since the Connecticut Title V program was approved on April 23, 1997, Superior shall be required to submit a Title V application within 12 months of the deferred due date of April 23, 2002. If you have any questions regarding this matter, please contact me at (860) 487-5606. Thank you for your assistance in this matter.

Sincerely,
Air Tox Environmental Company, Inc.

Dan Aune
Project Manager

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